

Applications Data Sheet

Biological Thin Section Imaging with Hitachi's Dedicated STEM

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INCLUDED IN A DIVERSE SUITE OF APPLICATIONS THE 200kV STEM GENERATES HIGH CONTRAST IMAGES OF BIOLOGICAL THIN SECTIONS.

Typically biological samples are imaged utilizing a TEM operating within a voltage range of 60~80kV to maximize specimen contrast. Prior to sectioning the tissue is fixed and then stained en-bloc with a heavy metal to further enhance specific area's of interest that would otherwise exhibit little or no contrast. In this application a 200kV dedicated STEM (HD-2000) was utilized to image biological thin sections of Thymus. As shown below, the samples exhibited high contrast even at a high accelerating voltage of 200kV. This clearly demonstrates that it is possible to utilize a dedicated STEM for routine imaging of biological tissues.



Fig.1 200kV Darkfield (HAADF) STEM image of Thymus

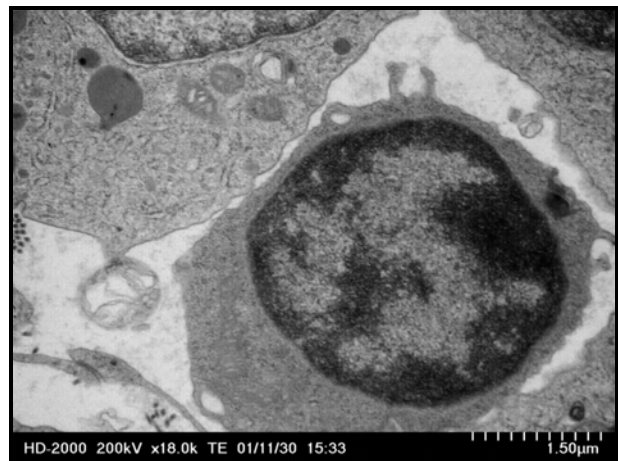


Fig.2 200kV Brightfield (BF) STEM image of Thymus

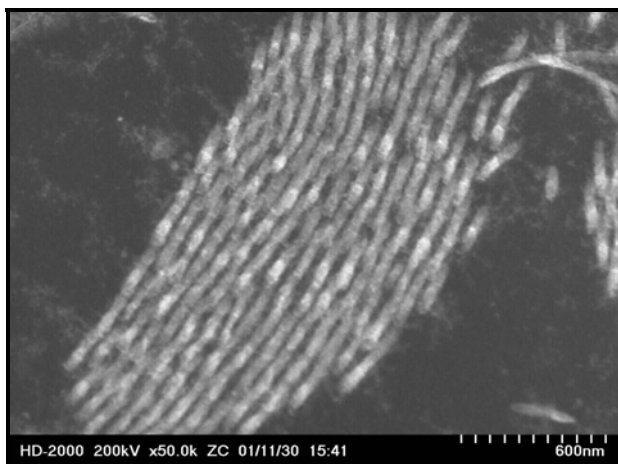


Fig.3 200kV Darkfield (HAADF) Image of Thymus-Collagen

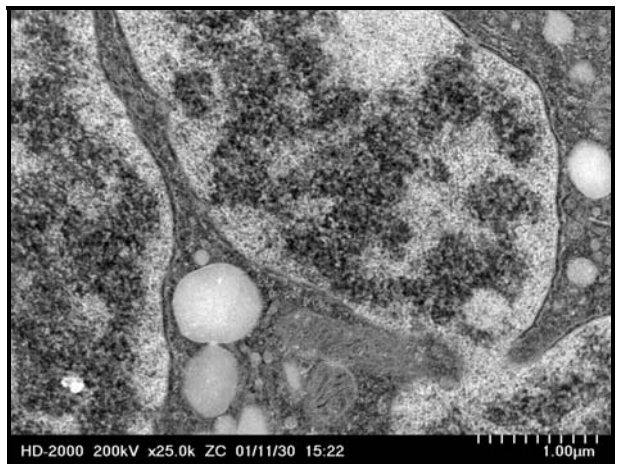


Fig.4 200kV Darkfield (HAADF) Image of Thymus